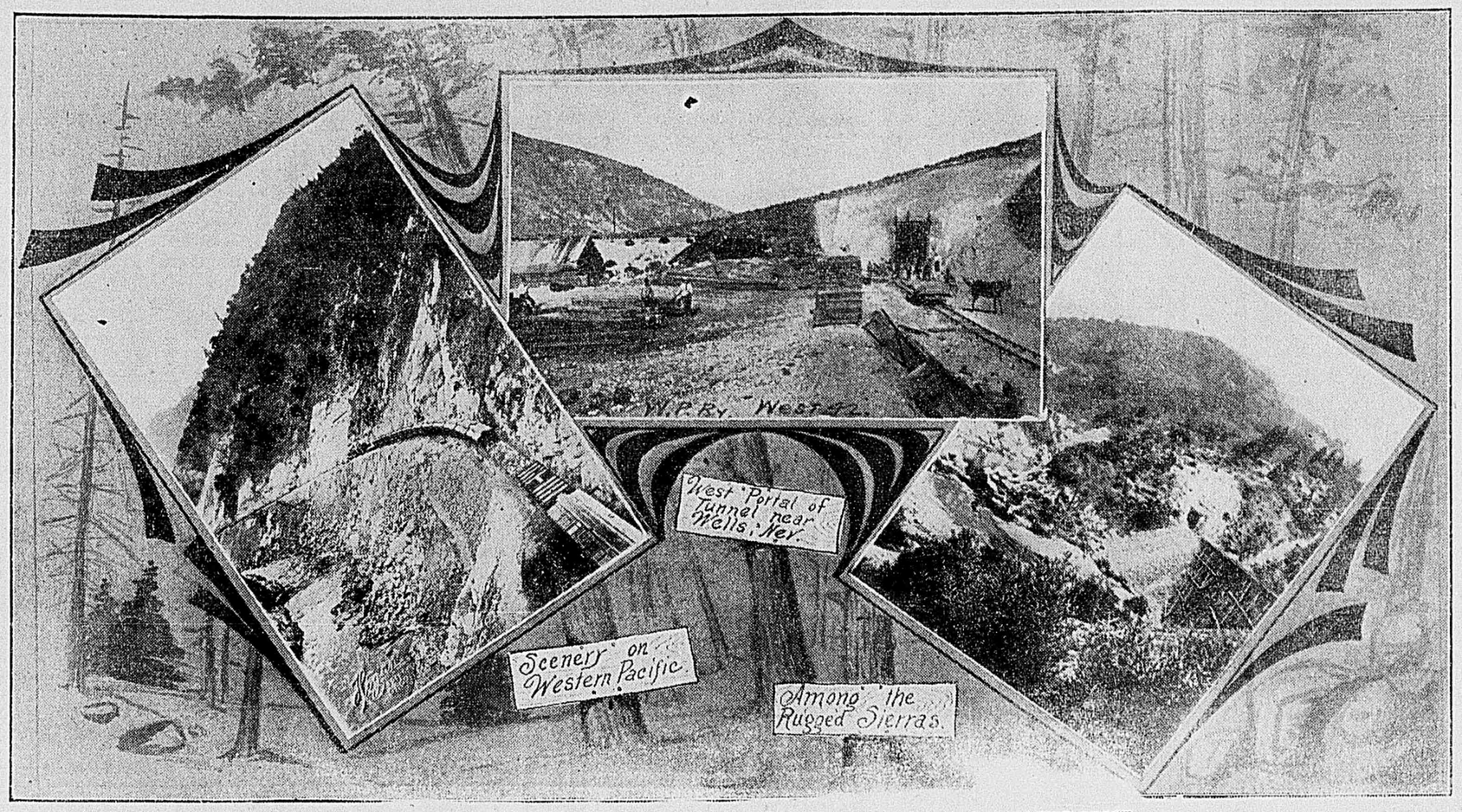
Western Pacific, Gould's Line Through to the Coast

WITH the opening of that division of the Western Pacific road between Salt Lake City, and Shafter, Nevada, a distance of 161.8 miles, on Nov. 9, of the present year, the first step was taken toward the realization of the dream of the western railroad man for the last 40 years—that of spanning the Sierras with a railroad whose maximum grade should not exceed 1 per cent, or less than 53 feet rise in one mile. Ever since the inception of the idea of joining steel bands across the western mountains entered the brains of the promoters of the first transcontinental lines nearly half a century ago, engineers and railroad builders have been seeking for a feasible route by which trains could cross the great mountain divides at a less height than was chosen by the builders of the Central Pacific road, whose highest pass in the bleak Sierra Nevadas is 7,017 feet. That such a pass was known to exist is acknowledged; but that the engineering feats entailed in its approach were such as to offer what seemed to be insurmountable obstacles to the construction of a railroad over its crest was also realized by railroad men. And by most of them the project was given up as hopeless.

One man, however, held tenaciously on to the idea that the road could be built and the pass surmounted, and after years of struggling, seemingly against fate and after meeting with many disappointments, what seemed to be the solution of the problem of constructing the road through the mountains was found, and the faith of that one man, E. T. Jeffery of New York, the present president of the road, was vindicated and the line was begun.

NO SNOWSHEDS.

The Western Pacific road will not have a snowshed on its entire line. The elimination of curves is one of the striking features of the new road, and one which assists in making it primarily a commercial proposition. These advantages from an operating standpoint give the Western Pacific a superiority in transcontinental railroad construction not possessed by its best equipped business rival. The road crosses the Utah desert, climbs the crests of the snow-bound Sierras at a heighth of only 5,018 feet, dips down into the valley of California and terminates at Oakland, without a grade anywhere exceeding 52.8 feet to the mile, and without a curve of more than 10 degrees.



ALONG THE WESTERN PACIFIC, GOULD'S CONNECTING LINK NOW BUILDING TO THE COAST.

About 190 miles of the western end of the road is also in operation. Several stretches have been completed through the states of Nevada and California, and construction is proceeding upon the gaps yet to be filled, and it is confidently expected that the year 1909, will witness the completion of the entire road, giving the Gould interests a Pacific coast outlet for their eastern and mid-country traffic.

THROUGH BECKWITH PASS.

The railroad crosses the backbone of the Sierras at what is known as Beckwith pass. At this point a tunnel 6,000 feet long is being built. This tunnel is one of the features which made the approach to the pass possible and rendered feasible the construction of the road without snow sheds.

ENGINEERING FEAT.

One of the greatest engineering problems encountered by the builders of the road was the crossing of the expanses of space into which the canyons of the Feather river in California leading to Beckwith pass suddenly terminated. From the headwaters of the Feather river the stream has a gradual descent for a considerable distance, when it suddenly jumps off into space, and presents insurmountable engineering obstacles. It was sought to run lines up two canyons of the north and middle forks and build a tunnel to connect the lines, but this was found to be impracticable. Finally one of the engineers, John F. Williams, figured out a plan by which a loop should be constructed so that a proper elevation could be gained for connection with the line along the middle fork by tunnel, and the problem was solved and the approach to Beckwith pass was accomplished. Along the valleys and mountains of the Feather river is said to be some of the most majestic and awe-inspiring scenery to be found upon the American continent.

After leaving the tunnel at Beckwith pass a gradual descent is found into the plains of Nevada along the Long Valley creek, running at one point almost straight north. The road reaches the bottom of the grade line near the southeast corner of Honey lake, where it crosses the narrow-gage line into Oregon, and then it makes an almost straight shoot to Winnemucca, Nevada.

PARALLEL TO THE S. P.

From Winnemucca eastward the road follows the Humboldt river, paralleling the Southern Pacific road as far as Wells. From Wells the route lies southeastward, crossing the Pequop and Toana ranges, midway between which the road crosses the line of the Nevada Northern railway, which latter line runs southward to Ely.

From Shafter eastward the road turns through what is known as the great American desert. This is one of the most forbidding streatches of sand in the world and the construction of the road bed over its undulating reaches was a serious problem which was successfully overcome. The road is built on a solid foundation through the desert and material to make it so was hauled in many miles from mountain country east and west.

BUILT OVER SALT BEDS.

One of the natural wonders through which the Western Pacific line passes is the great salt beds of western Utah. For miles the road passes over a perfectly level streatch of pure salt. The saline deposits cover an area of over 60 square miles, located about 15 miles east of the Nevada line, and about 110 miles west of Salt Lake City. The salt is so thick and so hard that it was necessary in excavating for telegraph poles to blast the salt out with charges of dynamite. It was found that in some places the deposit goes down to a depth of seven feet of pure salt. Under the recent decision of the supreme court these vast saline deposits belong to the state schools of Utah.

EXPENSIVE CONSTRUCTION.

The securing of such locations as would give to the road one per cent grade has naturally brought up the cost of construction of the Western Pacific to a high figure. The cost has averaged $50,000 to the mile, although on some stretches the cost has run up to $200,000 per mile. The work, however, is all according to the latest modern practise, and excels the best rebuilt transcontinental lines. The policy of the men building the line has been to build it but once and to build it to last.

ENGINEERS IN CHARGE.

The engineering department of the road, which has supervised the construction of what is already built and under whose direction the balance of the construction will be completed, consists of the fallowing officers: Virgil G. Bogue, conceded to be one of the ablest engineers in the country, is chief engineer and vice president of the road; H. M. McCartney is his principal assistant engineer, and the work on the five engineering divisions of the road are in charge, respectively, of John T. Williams, whose jurisdiction extends from Oakland to Marysville; Emery Oliver, from Marysville to Spanish creek; J. Q. Jamieson, from Spanish creek to Deep Hole; Charles Harlowe, from Deep Hole to Wells, Nevada; and T. J. Wyche, from Wells to Salt Lake City. S. V. Derrah of Salt Lake City has been placed in charge of the eastern division of the road, and the officials of the Rio Grande road exercise general supervision of the departments of the road at Oakland.

Considerable business has been developed already since the opening of the two divisions of the road, but the traffic handled is necessarily largely of a local nature. Improved service and increased business will follow the inauguration of the entire line when its 930 miles of construction work have been concluded and the joints pieced up completing the connection between Salt Lake on the east and the Pacific coast on the west.

The road has been completed on the eastern end as far as Deeth, Nevada, and work is being crowded on the grade into Elko, 32 miles beyond, and it is confidently expected that the Western Pacific will be in operation between Salt Lake and Elko, a distance of 261 miles by the beginning of the new year.

Notable Achievement on the Salt Lake Route

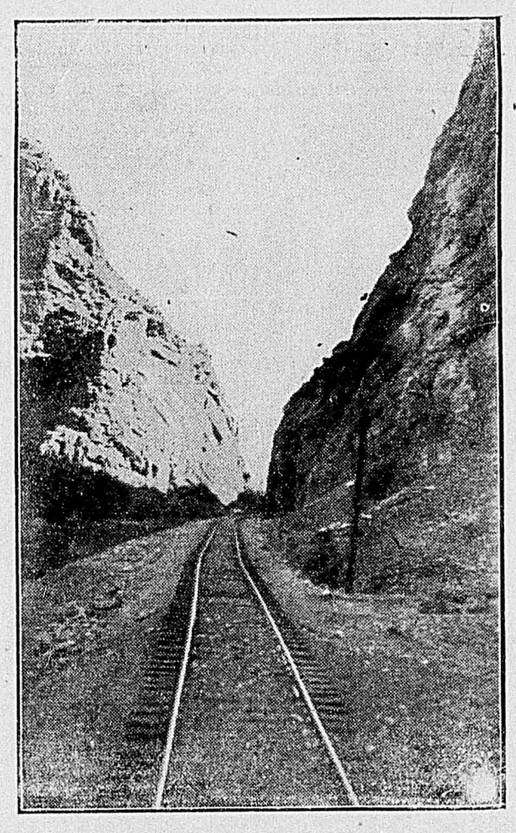
TWO notable achievements have been accomplished by the Salt Lake Route during the year that is just closing—that of conquering the waters of the Meadow Valley Wash, and the establishment of permanent service on the Pioche branch of the road. Both these achievements have been wrought in Nevada, but neither one is located far from the Utah line, and may almost be classed as Utah accomplishments, on account of the fact that the whole of the business produced by the new Pioche branch—or nearly so—comes to Utah. The trade of the great old Nevada camp is largely done with Utah centers, and it comes in and goes out over the line of the Salt Lake Route, which is Senator W. A. Clark's road from Salt Lake to the Pacific coast.

The Meadow Valley Wash extends southwesterly from Barclay, Nev., to Guelph, a distance of approximately 100 miles. This country is a most treacherous stretch, and the road through the "wash" is built through a canyon which is constantly subject to the caprices and whims of the slightest storms, as well as the ponderous floods which change the geology and geography of the country as easily as a boy spins a top. The district is subject to cloudbursts and heavy storms, and the railroad discovered to its sorrow that those disturbances of nature were of frequent and disastrous occurrence.

FLOOD THAT COST $1,500,000.

One of these floods happened one day in March, 1907, and the Meadow Valley river, usually a very small stream, became so swollen by the downpours of rain that the wash was filled with a raging torrent of water a mile wide, and furious in its headlong fall down the canyon. The wild waters swept down the mountain gorges with irresistible power, breaking the grade of the railroad as a piece of match straw, and wiping out the track for practically a distance of 45 miles. To repair the work of this one cloudburst cost the Salt Lake Route one and a half million dollars; but the repairing was made of that character that no cloudburst, flood, or other outbreak of nature known to the history of that part of the country will in future be able to disturb the progress of the steam horse and its wake of attendant civilization.

By the work of the engineers in the southeastern Nevada desert, the mountain torrent, which is itself the product of two considerable streams, has been chained and the course of the river has been altered. Miles of new bed have been scooped and blasted out of the gravel and rock and the river made to flow within the banks thus hewn out for it, so that it cannot approach the path of the road, until today, after a year and a half of hard and constant toil; after the worries and struggles of planning the work so that it would be practically impregnable to the attacks of the elements, the roadbed over and through Meadow Valley Wash is now as smooth and as solid as any piece of city track at any of the stations on the road.



ON THE PIOCHE BRANCH.

Condon Canyon Through Which New Clark Line Reaches Nevada Mining Camp.

GREAT ENGINEERING FEAT.

The engineering feat of construction here accomplished is compared favorably with the bridging of Great Salt lake by the Southern Pacific, and the construction of the Rio Grande through the Grand canyon of the Arkansas. The task of conquering the waters of the treacherous desert river was one of the most difficult in the world.

SOLID STEEL BRIDGES.

Where 18 bridges of more or less stable characters before spanned the river at the points of crossing in the tortuous canyon, only eight modern steel structures are now required. Every curve possible having been taken out of the stream and the track. Six of the new bridges are of 125 foot, riveted steel spans while the other two have similar spans of 110 feet. And, as H. H. Dunn writes in the Arrowhead, an earthquake might hurl them from the earth itself, but is could not wreck them. Against their foundations the waters rave in vain, and their beds are raised high above the highest mark set by the cloudburst tide of the spring of 1907.

The work of conquering the floods of Meadow Valley wash required the services of more than 1,000 men, laboring under the direction of the chief engineer, E. G. Tilton, who personally directed the work of his aid, Division Engineer J. A. Shanahan, and his assistant, F. Bates. From the operating department General Manager R. E. Wells, was often on the spot, and H. E. Van Housen, superintendent of the Salt Lake division was at the scene every moment that he could possibly devote to the work. Night and day this army of men worked and struggled to overcome the work of a day with a structure which thenceforward hurls defiance at the storm and floodwaters of the Meadow Valley wash.

PIOCHE BRANCH.

The second notable achievement of the Clark road is the installation of the Pioche branch, extending 33 miles from Caliente northeastern to Pioche in Nevada. The mountains of low grade ore which for years have been piling up at Pioche, awaiting the advent of the iron horse, now have an outlet, and the old camp has taken on new life since the toot of the locomotive is heard in the land. Salt Lake is the natural market for the products of Pioche, and business has been brisk in the line of exchange of commodities for precious ores between the Nevada camp and the Utah distributing center. This reciprocal trade will develop and become stronger as time goes on, and as the richly burdened mountains are made to yield up their treasures in response to the miner's pick.

That the road will be extended in the immediate future from Pioche round the mountain to the Prince Con., and the Mendha mining properties, there is no shadow of doubt. These two mines have opened up recently with amazing richness, and their tonnage alone, is said to be sufficient to provide the road with paying revenue for building the branch.

EXTENSION TO ELY?

There is also the imminent possibility of the extension of the road during the coming year northward to the mining and smelter town of Ely. Another extension in the minds of railroad builders which will eventually be made is westward from Pioche to Goldfield. As the mineral wealth of the old Sagebrush state is gradually disgorged, and as the properties open up and business conditions warrant, there is always money, men and material to be had to make extensions of railroad lines to meet the traffic thus produced, and thus, in the course of time Nevada will come back to her own as the gem state of the west in mineral production, and her interior will be bisected with railroad lines whose trains shall groan under their loads of precious freight, while population and civilization reclaim the deserts and carry into their barren wastes the progress of the twentieth century.

Rapid Transit in Salt Lake City

THE Utah Light & Railway company has accomplished a great deal of valuable work the past year in the rejuvenation of its street railway system. This includes the rebuilding entire of a large fraction of the tracks and the starting of the new barns in the old Tenth ward square. The front elevation of the barns as given on this page, shows spacious and efficient accommodation for rolling stock. The structure is 230 feet wide and 430 feet long, divided into four compartments, each of equal size, and one story high, being 35 feet in the clear. The foundations are of concrete throughout, and the walls of pressed brick. There are 16 tracks in the barns, each provided with a pit of five cars capacity, and all of concrete. There are wash pits also, accommodating each four cars. The roof of the building is of steel trusses with cement covering, and provided with skylights There are no side windows. The doors are of rolled steel at both fronts; everything being absolutely fire proof, with no wood used in construction. In addition, there is an automatic sprinkler system provided, for the protection of the rolling stock housed in the barns. The barns will be heated either with steam of hot water, and at a temperature of not less than 70 degrees in zero weather. The barn capacity is 144 cars, each 45 feet long.

At present, there is no other structure on the grounds, beyond a frame, one story room for the car men. The shops will remain at the Second East street establishment for the present, until things are in readiness at the Tenth ward square for removal. The new shop plant will include blacksmith shop, machine shop, paint shop, carpenter shop, oil storage and supply houses, club house for the men, and heating plant for all of the buildings. So far $220,000 has been expended on the new plant, to which may be added the cost of the square for which the company paid David Keith $75,000. As Mr. Keith paid the state $10,000 for the property two years ago, the difference indicating how property has raised in value there in that time. The plant which the company will erect there the coming year, as shown above, will require the expenditure of $400,000 more, or about $700,000 all told in round numbers. A water and sewer system has been installed. The whole arrangement is admirably designated for effectiv and labor saving work, by Chief Engineer Dagron of the company. Half a mile of fence surrounds the property, with barbed wire along the top over which the small boy cannot climb without "tearing himself all to pieces."

$300,000 FOR NEW CARS.

The 50 new and elegant cars ordered by the company in time for delivery in November, 1907, were received last April, representing an expenditure of $300,000, and 34 old cars, once bright and new, a source of pride, were retired permanently from business. They now suggest the sigh of the poet as he writes, "Wrecks strewn along the shores of time." The new cars are of the latest and most approved model, with spacious vestibules appreciated by the public, and which are doing good service and giving entire satisfaction. The company has also bought five track sweepers, making six in all in its possession, and several new repair wagons with movable platforms have been added.

EPOCH OF RECONSTRUCTION.

The reconstruction has been remarkable. Practically every line, except the Murray line has been more or less rebuilt, most of them entirely so. In this progress the company has hauled 60,000 cubic yards of gravel, distributed as far south as Wandamere. Not only has the Wandamere line been entirely rebuilt on Seventh East street, but it has been double tracked and the wagon roadway rebuilt of heavy sand and gravel. The same may be said of the line on Eleventh East street, the Waterloo line, and the Ashton avenue line. Several important relocations have been made, as in the case of the Sugar House tracks on east Ninth South street and the Ashton avenue lines. The total reconstruction aggregates 23 miles, making 58 miles in two years. The rails are 85 pound steel in the paved districts, and 65 pound steel outside. The company is now building the new Fort Douglas connections, and during the coming year, the construction scheme will include, Second South to Eleventh East; Third South down Ninth East, Fourth South down Seventh East, the Thirteenth East street, and the Ninth avenue lines. It is proposed also to build on Eighth West street from North Temple to Tenth South streets. This will call for a large expenditure of capital. The company management has in mind extensions to Sandy, Holladay and to Bingham Junction in the course of the next three years; but it is doubtful if there is any street railway extension made to Garfield, as the people there trade at home, and there are so many trains running between Garfield and Salt Lake that the few who do visit the city are well provided with transportation facilities. The Murray line will be rebuilt entirely next year, and put in as fine shape as the other reconstructed lines.

NEW TROLLEY SYSTEM.

The new conduit system and the inauguration of the new trolley system in the business section are most valuable improvements. Conduits for all the wires of the Utah Light & Railway company have been built through 28 blocks, on Main, State, West Temple, First, Second and Third South, South Temple and Fourth South streets, at an expense of $400,000. The installing of curbstone trolley standards in the paved sections enables a removal of the old time poles that have been for so long an eye-sore. These new poles are of rolled steel, 20 to 30 feet high, costing $65 each, and stationed six to each block. They support the trolley wires with cross wire supports, and are not objectionable to the eye.

CLEARING THE STREETS.

The cobweb of wires on Main street is being rapidly obliterated; but the heaviest work will be the removal of the vast complexity of wires on West Temple street. Electrical Engineer Honnold is superintending the wire transfers, pushing the improvement with all possible speed. The mechanical department's efficiency will be greatly increased this month by the arrival and installation of the new 3,000 horsepower motor-generator from Milwaukee, costing $35,000, and which gives the company a total of 6,000 horsepower, all that will be required for several years to come. This motor is operated by alternating current from the high tension wires, and the connecting generator sends out direct currents with which to run the street cars. The lighting of buildings is by alternating currents; and as some 500 houses have been erected this year the lighting department has been very busy.

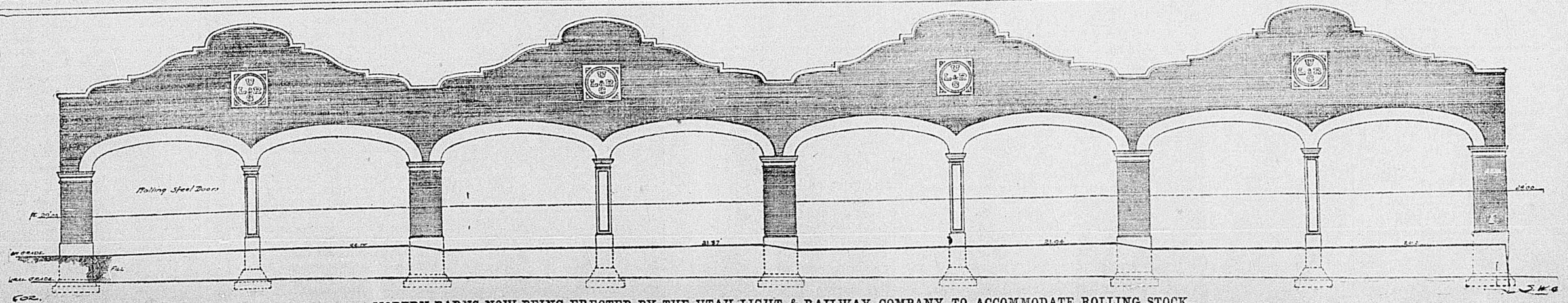
THOUSAND MEN AT WORK.

The company is at present employing a little over 1,000 men, 400 of these being motormen and conductors. The laborers have been averaging 400 men. The expenditure of so much money and such radical physical transformations could hardly have been accomplished by any other agency than a Harriman corporation. It is only fair to say that every one connected with the company, from General Manager J. S. Wells, and Assistant General Manager R. E. Hunt down, has worked zealously for the company's and the public interest during the past year.

Electric Road Up Emigration Canyon.

The Emigration Canyon Railroad company was organized the first part of the year of 1907, with the capital stock of $300,000. The length of the proposed line is about 20 miles, its intended terminal points being the east part of Salt Lake City and the headwaters of Emigration canyon, with a branch line running south on Twenty-first East street through East Mill Creek to Holiday. The road has now been built from its depot grounds on the corner of Fifth South and Thirteenth East, thence easterly up Emigration canyon to the headwaters thereof, a distance of nearly 14 miles. The road is standard gage, and is run by electricity.

The main objects that inspired the building of the road of the Emigration Canyon railroad were: First, the immense red and white sandstone ledges and great limestone mountains that lie at the head of the canyon. Second, to connect Salt Lake City by trolley car system with a canyon that is historic, and which when better known will be noted for its beauty and fine scenery, and to make accessible a canyon residence for the summer season within the means and reach of all.



MODERN BARNS NOW BEING ERECTED BY THE UTAH LIGHT & RAILWAY COMPANY TO ACCOMMODATE ROLLING STOCK.